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IV

**FISHES FROM EASTERN CHINA, WITH
DESCRIPTIONS OF NEW SPECIES**

BY

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AND

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This paper is a report on two small collections of Chinese fishes, the first made by the junior author at Shanghai, Woosung (near Shanghai), Nanking, Hangchow, Sunkiang, and Chuchi, in 1924-1925; the other by Professor Chi Ping of Southeastern University, Nanking, China, at Chefoo, Nankiang, Woosung, Ningpo, and Wenchow, in 1921 and 1922. The specimens collected by Professor Ping were kindly sent by him to the senior author for identification and report. The collection made by Mr. Shaw was brought by him to America in 1925 and presented by him to the California Academy of Sciences.

The total number of specimens examined is 128, of which 94 were collected by Mr. Shaw and 34 by Professor Ping.

The localities and the number of specimens from each is as follows:

January 31, 1927

Locality	Shaw	Ping
Shanghai	11	
Wenchow		1
Woosung	1	1
Sunkiang	4	1
Chuchi	9	
Nanking	10	16
Hangchow	59	
Ningpo		5
Chefoo		10
	—	—
Total	94	34

A series of duplicate specimens has been sent to Doctor Ping at Nanking.

The writers are under obligations to Mr. H. Walton Clark for valuable assistance in the study of these specimens.

Type localities are printed in **black-face type**.

Family CARCHARHINIDÆ

1. *Scoliodon laticaudus* (Müller & Henle)

Chinese name, *Sar-yu* (Sand-fish)

One specimen (No. 875), a young individual 274 mm. long from tip of snout to end of caudal fin, collected by Dr. Ping at Wenchow, Chekiang.

Body compressed; head depressed; snout long. Head 3.2 in length of body without caudal; depth 6.5; eye with nictitating membrane; first dorsal without spine, opposite space between pectoral and ventrals; second dorsal behind origin of anal; length of anal nearly equal to its distance from ventrals; pectoral not reaching origin of first dorsal; caudal 8.7 in total length with tail, with a distinct lower lobe; length of preoral portion of snout exceeding width of mouth; a short labial groove at angle of mouth, not extending on upper jaw; teeth in both jaws, none serrated; a small pit above root of tail; mouth crescentic, inferior. Color dark brown.

Carcharias (*Scoliodon*) *laticaudus* Müller & Henle, Wiegmann's Archiv f. Naturg., 1837, I, 397, **East Indies**.

2. *Hemigaleus pingi* Evermann & Shaw, new species

One specimen. Body elongate, slender; head depressed, flattened below; spiracle small; nictitating membrane present; mouth with distinct labial folds; first dorsal opposite space between pectoral and ventrals; length of preoral portion of snout equals width of mouth; distance between eye and spiracle about 3 in diameter of eye; mouth inferior, crescentic, the groove at angle extending some distance on each jaw; nostrils nearer mouth than to snout; distance between outer point of nostrils slightly greater than width of mouth; three rows of teeth on upper and lower jaws, each tooth with a basal lobe; pectoral near gill-opening; second dorsal a little in advance of anal; a pit below and one above caudal. Color dark brown, lighter below; a few black spots on each side of body.

Type: No. 500, Mus. Calif. Acad. Sci., a specimen (original No. 851), 266 mm. long, collected by Dr. Ping at **Wenchow**.

We take pleasure in naming this new species for Dr. Chi Ping, professor of zoology, Southeastern University, Nanking.

Family DASYATIDÆ

3. *Dasyatis zugei* (Müller & Henle)

Chinese name, *Tse-yao-yu* (Stingray)

One specimen (No. 878), 272 mm. long with tail, collected by Dr. Ping at Chefoo.

Disk slightly broader than long; snout pointed, the margins nearly straight, the length 3.5 in that of disk; interorbital concave; two fins at base of tail, tail longer than disk, whip-like, with prominent fold on upper and lower sides; a long and strong spine at about end of first fourth of tail; eye about equal to diameter of spiracle which is immediately behind it. Color light brown above, white below.

Trygon zugei Müller & Henle, *Plagiostomen*, 168, pl. LIII, 1838, **Nagasaki**.

Family ACIPENSERIDÆ

4. *Acipenser sinensis* GrayChinese name, *Ging-yu* (Sturgeon)

One specimen obtained in the Hongkew fish market in Shanghai. It was a young fish 51 cm. long, and is now preserved in the Ching Chong High School, Shanghai. It probably came from the lower part of the Yangtse River. The species inhabits the seas of China and is said to reach a length of 300 cm. or more.

Head 3; depth 5; eye 7; snout 2. Body armed with 5 rows of bony plates, the dorsal series containing 14 plates, the two lateral ones 41 each; ventrals 10 each; dorsal with one plate behind located in posterior part of body; anal with two small plates in its front and one behind; four barbels before mouth; pectoral near gill-opening; ventrals close to anal; one large bony plate on each opercle. Color, dark gray on back, lighter below.

Acipenser sinensis Gray, Proc. Zool. Soc. London, Part II, 1834, 122, China.

Family ENGRAULIDÆ

5. *Coilia ectenes* Jordan & SealeChinese name, *Taou-yu* (Knife-fish), from the sharp ventral edge.

Seven specimens (145, 166, 203, 207, 245, 255, and 275 mm. long respectively), from Hangechow, Chuchi and Nanking; No. 761 from the Yangtse River (Dr. Ping Coll.), the others Nos. 508 to 513 (Shaw Coll.).

Head 6.5 to 6.6; depth 5.8 to 7.7; eye about 7; interorbital width 3; V. 6; P. 16; snout 4.5 to 5.8; D. II, 11; A. 90 to 106; scales about 69. Six pectoral filaments, the longest reaching beyond origin of anal; maxillary tapering behind, extending to base of pectoral; distance between base of first dorsal ray and tip of snout about 4 in total length without caudal; gillrakers about 35 on lower limb of outer arch; abdominal serratures 49. Color, silvery white. Description based chiefly of the Ping specimen.

This species differs from *Coilia nasus* Schlegel, in the greater number of anal rays, the latter having only 85 according to Schlegel (Fauna Japonica, Poiss., p. 244).

The average length of this species is about 300 mm. They appear in the lower Yangtse and the Chientang River after April. They also appear in the lakes connected with the river. They do not seem to be found in inland waters in the winter. Chinkiang is famous for this fish which is much prized, the flesh being of delicate flavor, albeit with many small bones.

Coilia ectenes Jordan & Seale, Proc. U. S. Nat. Mus., XXIX, 1906, 517, Shanghai, China.

Family FLUTIDÆ

6. *Fluta alba* (Zuiew)

Chinese name, *Hwang-sang* (Yellow Mud Eel);

Japanese name, *Taunagi* (Rice-field Eel)

One specimen (No. 849), 246 mm. long, from Nanking.

Head 8.3 in distance from end of snout to anal opening; eye about 8 in head; snout 4; no scales. Body elongate, tail narrow and tapering to a point; origin of dorsal slightly in front, the ventral slightly behind anal opening. Color, yellowish; blackish above, orange below.

A common food fish in eastern China.

Basilewsky called it *Apterigia saccogularis*.

Murana alba Zuiew, Nov. Act. Acad. Sci. Petropol., 1793, 299, pl. VII, fig. 2.

Family ANGUILLIDÆ

7. *Anguilla japonica* Temminck & Schlegel

Chinese name, *Mur-yu* or *Mur* (Eel)

Two specimens, 390 and 495 mm. long respectively (Nos. 514 and 515), from Shanghai and Hangechow.

Head 3.4 in length to vent; depth 8; head and trunk 1.5 in rest of body; snout 5.3; maxillary 3.3 in head; interorbital 5.6; eye 2 in snout; distance between dorsal and anal origin 1.25 in head.

Color, dark above, white below; fins more or less pinkish; caudal black at tip.

Common in Eastern China.

Anguilla japonica Temminck & Schlegel, Fauna Japonica, Poiss., 258, pl. CXIII, fig. 2, 1846.

Family MURÆNESOCIDÆ

8. *Murænesox cinereus* (Forskål)

Chinese name, *Ho-zang* (Stork Eel)

One specimen (No. 852), 345 mm. long, from Chefoo.

Head 2.2 in length to vent; snout 4 in head; eye 2.1 in snout; jaws with several series of small teeth, anteriorly with canines; middle of vomer with several large conical teeth; two pairs of nostrils, the posterior opposite middle of eye; origin of pectoral above gill-opening; of dorsal, a little in advance of pectoral.

Color, grayish brown above, whitish below.

This species is reported also from Chekiang and southward to Canton.

Muræna cinerea Forskål, Descr. Anim., pages X and 22, 1775, Red Sea.

Family CYPRINIDÆ

9. *Sacocheilichthys variegatus* (Temminck & Schlegel)

Chinese name, *Loo-hen-yu* (Buddha-fish)

One specimen (No. 516), 87 mm. long, from Nanking.

Head 4; depth 3.3; eye 3.1; interorbital 2.1; D. 9; A. 8; scales 5-40-5. Upper profile of snout convex; mouth inferior, horseshoe-shaped; lower jaw with pendent lateral lobes; no barbels; origin of dorsal fin nearer tip of snout than base of caudal.

Leuciscus variegatus Temminck & Schlegel, Fauna Japonica, Poiss., 213, pl. CII, fig. 2, 1846.

10. *Parabramis pekinensis* (Basilewsky)Chinese name, *Pein-yu* (Flat-fish; Chinese Bream)

Four specimens (Nos. 760, 586, 587 and 588), 152-212 mm. long, from Hangchow, Shanghai and Nanking.

Head 4; depth 3; eye 4 in head, greater than snout; D. II, 8; A. 34; V. 9; scales 11-52-9; second dorsal ray very strong, not serrated, about as long as head; upper jaw overlapping lower; pectoral shorter than head; scales moderate; mouth anterior; no barbels; origin of dorsal a little behind ventrals.

Abramis pekinensis Basilewsky, Nouv. Mém. Soc. Nat. Mosc., X, 1855, 239, tab. 6, fig. 2.

11. *Zezeia rathbuni* Jordan & SealeChinese name, *Tson-chau-ting*

One specimen (No. 517), 186 mm. long from Nanking.

Head 5, its depth 1.45 in its length; depth 4.5; eye 7.4; snout 2.7; interorbital width 2.6; D. 8; A. 7; scales 7-56-6. Body elongate, head naked, rather blunt; barbel present, a little longer than snout.

Color in spirits, gray above, yellowish below with some silvery reflections.

Zezeia rathbuni Jordan & Seale, Proc. U. S. Nat. Mus., XXIX, 1906, 518, fig. 2. Shanghai, China.

12. *Cyprinus carpio* LinnæusChinese name, *Li-yu* (Carp)

One specimen (No. 518), 115 mm. long, from Chuchi.

Head 3.3; depth 3; eye 5; snout 2.8; D. III, 18; A. III, 5; scales 5-36-6; two pairs of barbels.

Abundant in lakes and rivers.

Cyprinus carpio Linnæus, Syst. Nat., ed. X, 1758, 320.

13. *Carassius auratus* (Linnæus)

Chinese name, *Chi-yu* (Small Carp; Goldfish)

One specimen (No. 847), 162 mm. long, from Nanking.

Head 3.3; depth 3; eye 4; snout 4; D. II, 17; A. III, 5; P. 17; V. I, 8; scales 7-28-5.

Common everywhere in Eastern China.

Cyprinus auratus Linnæus, Syst. Nat., ed. X, 1758, 323.

14. *Myloleuciscus æthiops* (Bleeker)

Chinese name, *Tsou-yu* (Weed-eating Fish)

Two specimens (Nos. 764 and 589), 151 and 190 mm. long respectively, from Shanghai and Nanking.

Head 3.8; depth 3.75; eye 5.2; snout 3.5; interorbital width 2.1; D. I, 8; A. 10; P. 18; V. 9; scales 6-42-5; origin of dorsal at middle of body; origin of pectoral at gill-opening; ventrals nearly opposite dorsal. Anal midway between ventrals and caudal.

Color, light yellow, blackish above.

A common food-fish in ponds and lakes of Eastern China.

Leuciscus æthiops Basilewsky, Nouv. Mém. Soc. Nat. Mosc., X, 1855, 23, tab. 6, fig. 1, **Pekin**.

Myloleuciscus atripinnis Garman, Mem. Mus. Comp. Zool., XL, 1912, No. 4, 116, **Shasi, Hupeh Province, China**.

15. *Acheilognathus imberbis* Günther

(*Parachilognathus imberbis* Bleeker)

One specimen (No. 519), 57 mm. long, from Shanghai.

Head 3.8; depth 2.5; eye 3 in head, equal to snout; D. II, 12; A. II, 10; scales 6-34-5; interorbital width a little greater than eye; mouth small; no barbels; origin of dorsal a little nearer tip of snout than caudal; lateral line slightly curved downward.

Color, silvery; a bluish band along middle of side of tail.

We have compared our specimen with one in Stanford University collected at Tien Tsin by N. F. Drake and find them to agree perfectly.

Achilognathus imberbis Günther, Cat., VII, 278, 1868, **China**.

16. *Acheilognathus asmussi* (Dybowski)

(*Acanthorhodens asmussi*)

One specimen (No. 520), 57 mm. long, from Shanghai. D. II, 16; A. II, 13. Closely related to *A. imberbis*, but with more numerous fin-rays.

17. *Culter recurviceps* (Richardson)

One specimen (No. 759), 202 mm. long, from Yangtse River, at Nanking.

Head 4; depth 3.2; eye 4.6; snout somewhat greater than eye, equalling interorbital width; D. II, 7; A. 28; scales 12-48-9; lateral line nearly straight; mouth subvertical; no barbels; caudal forked; second dorsal spine strong and smooth; pectoral extending to ventrals; interorbital space convex; maxillary not reaching orbit. Color, silvery.

Leuciscus recurviceps Richardson, Ichth. Chin., 295, 1845.

Culter alburnus Basilewsky, Nouv. Mém. Soc. Nat. Mosc., X, 1855, tab. 8, fig. 3.

18. *Hemibarbus barbus* (Schlegel)

Three specimens (Nos. 871, 590 and 591), 188, 215 and 175 mm. long respectively, from Hangechow and Nanking.

Head 4.1; depth 4.3; eye 4.2; snout 2.6; interorbital width 3.1; D. III, 7, the second spine strong, smooth and about length of head; A. II, 6; V. 10; P. about 19; scales 6-47-6, 4 between lateral line and ventral and 5 between it and anal; origin of dorsal a little nearer tip of snout than tip of caudal.

Many small black spots on back and on dorsal and caudal fins.

Our specimens agree with others from Formosa which we have examined in Stanford University.

Gobio barbus Schlegel, in Siebold's Fauna Japonica, Poiss., 198, pl. 99, fig. 1, 1850.

19. *Pseudogobio chaoi* Evermann & Shaw, new speciesChinese name, *Ma-chi* (Horse Carp)

One specimen. Head 3.5; depth 4.5; eye 3; snout 2.3; interorbital width 4.5; D. II, 7; A. 7; V. 9; scales 6-38-5; mouth inferior, with 2 small barbels at each corner; origin of dorsal about midway of body; ventral somewhat behind dorsal. A series of round blackish spots above lateral line; dorsal with some black spots.

This species resembles *P. esocinus* Schlegel, but differs in the shorter head, shorter snout, and weaker and shorter barbels. From *P. drakei* Abbott (No. 6303, Stanford University) it differs in the longer head, larger eye and deeper body.

Type: No. 501, Mus. Calif. Acad. Sci., a specimen 97 mm. long, from **Nanking, China.**

It gives us great pleasure to name this species for Messrs. T. P. Chao and P. K. Chao, graduates of Southeastern University, who so kindly assisted the junior writer in collecting some of the specimens.

20. *Saurogobio dumerili* Bleeker

One specimen (No. 850), from Chefoo and two (Nos. 521 and 522), from Hangchow, 222, 226 and 227 mm. long, respectively.

Head 6; depth 8; eye 4.5; snout 2.8; interorbital width 3.1; D. 9; A. 8; scales large, 6-55-4. Body elongate, not compressed; snout blunt; mouth inferior; horseshoe-shaped; 4 barbels, their length equal to diameter of eye; origin of dorsal at beginning of second third of body length (in the Chefoo specimen the distance from snout to origin of dorsal is 2.7 in total length); pectoral nearly as long as head; origin of anal nearer base of caudal than to dorsal. Color silvery, the Chefoo example a little darker than those from Hangchow, probably because of manner of preservation.

21. *Squaliobarbus jordani* Evermann & Shaw, new species

Head 4.2 to 4.5; depth 4.3 to 4.6; eye 4.2 to 4.6; snout 3.3 to 3.6; interorbital width 2.2; D. 9; A. I, 7; scales 6-46-3, of moderate size, the lateral line low but terminating in the middle of the tail. Dorsal opposite ventral, its origin at middle of length of body; interorbital space flat; upper jaw slightly overlapping the lower; two minute barbels, one at each angle of mouth; caudal forked. Color, blackish-green above, pale below; a dark area on each scale forming rows of small black triangles with the apex pointing forward, about 6 rows on each side.

This species differs from *Squalibarbus curriculus* Richardson, in the advanced position of the ventrals, the more numerous scales in the lateral line, the fewer dorsal rays, and the presence of only 2 barbels.

Five specimens (Nos. 873, 523, 524, 525, and 502), from Hangchow, Nanking, and Shanghai, 120, 133, 141, 167, and 213 mm. long, respectively.

Type: No. 502, Mus. Calif. Acad. Sci., a specimen 213 mm. long, collected by Mr. Shaw at Hangchow.

We take pleasure in naming this species for Dr. David Starr Jordan to whom practically all American ichthyologists of the last half century owe their inspiration.

22. *Xenocypris davidi* Bleeker

One specimen (No. 526), 190 mm. long, from Hangchow.

Head 4.7; depth 3.7; eye 3.7; snout equals eye, interorbital width 2.6; D. II, 8; A. 14; scales 10-74-7, the lateral line running along middle of body; second dorsal spine strong and smooth; ventrals below dorsal, their distance from snout nearly 2 in total length; origin of anal about midway between ventrals and caudal; mouth small, the upper jaw overlapping the lower; no barbels; caudal forked. Our specimen agrees well with the descriptions of *X. davidi* except that it has more scales in the lateral line.

Xenocypris davidi Bleeker, Sur. Cypr. China in Verh. Akad. Amsterd., XII, 1871, 56, tab. 6, fig. 4, Yangtse River.

Genus **Kendallia** Evermann & Shaw, new genus

Type: *Kendallia goldsbroughi* Evermann & Shaw, new species.

This genus is related to *Parapelecus* Günther, and is characterized by the more advanced position of the dorsal fin, the presence of spines in the dorsal, and the moderate length of the anal which has few rays.

The genus is dedicated to Dr. William Converse Kendall, for 23 years associate of, and co-worker with, the senior author in the United States Bureau of Fisheries, and one of the most discerning students of American fishes.

23. ***Kendallia goldsbroughi*** Evermann & Shaw, new species

One specimen. Head 4.5; depth 4.4; eye 4; snout 4; inter-orbital width 3.3; D. II, 7; A. I, 13; scales 8-46-3; pharyngeal teeth 3, 4, 1-4, 2.

Body similar to that of *Parapelecus* Günther (1889, from Kiu-kiang), but the dorsal is more advanced.

Body compressed, the entire abdominal edge trenchant; lateral line sharply decurved above the pectoral, running along the ventral side, rising again abruptly posteriorly to middle of caudal peduncle; mouth oblique; no barbels; insertion of pectoral below median line of body, as long as head; origin of dorsal nearer base of caudal than to snout; second dorsal spine strong; longest dorsal ray shorter than pectoral; insertion of ventrals at middle of total length; anal midway between dorsal and caudal; caudal well forked.

Color, bright silvery, blue-green on back.

Type: No. 503, Mus. Calif. Acad. Sci., a specimen (No. 77) 153 mm. long, collected by Mr. Shaw at **Hangchow**.

This species is named for Mr. Edmund Lee Goldsbrough, for many years associated with the senior author and their mutual good friend, Dr. William Converse Kendall, in the study of fishes.

24. *Elopichthys bambusa* (Richardson)Chinese name, *Kan-yu*

One specimen (No. 527), 250 mm. long, from Nanking.

Head 3.7; depth 5.75; eye 6.6; snout 3.1; interorbital width 4; D. 12; A. 11; P. 18; V. 11; scales small, 18-114-5; pharyngeal teeth in 3 rows, 4, 3, 2-5, 1, 4, the outer 4 enlarged.

Body elongate; head pointed; mouth terminal, the gape extending below front of eye; no barbels; nostrils at front of upper corner of eye; tongue well developed; gillrakers short; lateral line curved downward over pectoral, running along ventral side then ascending to middle of tail; dorsal origin behind midway of body, longest ray about 1.6 in head; insertion of pectoral low, near opercle, the fin shorter than dorsal; ventrals as long as pectorals, their origin slightly in front of dorsal, nearer snout than to caudal; anal midway between caudal and dorsal; depth of caudal peduncle equal to length of snout; tail deeply forked. Color, silvery, darker above.

This species is said to feed largely upon other fishes. The adults attain a length of 4 feet or more.

Leuciscus bambusa Richardson, Voy. Sulph. Ichth., 141, pl. 63, fig. 2, 1845, and Ichth. Chin., 299, 1845, Canton, China.

25. *Parapelecus machærius* Abbott

One specimen (No. 528), 155 mm. long, from Hangchow.

Head 5; depth 4.5; eye 4; snout about 3.5; D. 10; A. 29; scales 68 in lateral line. Dorsal outline straight, ventral strongly convex, the whole edge trenchant; dorsal origin midway between base of caudal and edge of opercle; lateral line descending abruptly above pectoral. Color, silvery, darker above.

Parapelecus machærius Abbott, Proc. U. S. Nat. Mus., XXIII, 1901, 488, one fig., Pei-ho River, Tientsin, China.

26. *Culticula emmelas* Abbott

Four specimens (Nos. 529-532), 91, 105, 108 and 111 mm. long, from Hangchow.

Head 4.5; depth 4; eye 3.8; snout about 4; D. II, 7; A. II, 11; scales 8-47-5. Body elongate, dorsal and ventral outlines about equally curved; mouth terminal; lateral line curved downward; caudal deeply forked.

Culticula emmelas Abbott, Proc. U. S. Nat. Mus., XXIII, 1901, 485, one fig., Pei-ho River, Tientsin, China.

27. *Exoglossops geei* Fowler & Bean

One specimen (No. 533), 146 mm. long, from Hangchow.

Head 4.1; depth 3.2; eye 4.2; snout 3; D. III, 7; A. III, 6; scales 6-38-6. Body robust; caudal peduncle deep; mouth inferior; no barbels; dorsal fin opposite ventrals; lower lip with horny plate; interorbital space slightly convex.

Exoglossops geei Fowler & Bean, Proc. U. S. Nat. Mus., LVIII, 1921, 311, fig. 1, Soochow, China.

Family COBITIDÆ

28. *Misgurnus anguillicaudatus* (Cantor)

Chinese name, *Nee-chu* (Mud Loach)

One specimen (No. 534), 175 mm. long from Chuchi, and one (No. 863) with body length of 83 mm. from Nanking.

Head 6; depth 7.5; eye 9.5; interorbital width 4.3; D. 7; A. 7; V. 6; scales very small, more than 130 in lateral line; many barbels, the longest 3.5 in head; origin of dorsal nearer caudal than end of snout; pectoral shorter than head.

Body and fins with numerous small black spots, probably myxosporidia.

Cobitis anguillicaudata Cantor, Ann. Mag. Nat. Hist., IX, 1842, 485, Malay Peninsula.

Family BAGRIDÆ

29. *Liocassis longirostris* Günther

Chinese name, *Wai-yu*

Two specimens (Nos. 757 and 535), 119 and 224 mm. long respectively, from Nanking.

Head 3.5; depth 4.5; eye 10; interorbital width 3.2; snout 2.6; depth of caudal peduncle 4 in head; D. I, 7, the spine serrated; A. 17; P. I, 9, the spine strongly serrated; V. 6, its origin behind dorsal.

Body elongate; neck region triangular in cross-section; caudal peduncle compressed; snout conical; mouth inferior; teeth villiform; 8 barbels, those on upper jaw longest; eye very small, no free circular eyelid; occipital process naked; origin of dorsal midway between snout and long adipose fin; origin of ventrals behind dorsal.

Adults seen in the markets of Nanking and Chinkiang were more than 2 feet long.

Liocassis longirostris Günther, Cat. Fish., V, 87, 1864, Japan.

30. *Parasilurus asotus* (Linnæus)

Chinese name, *Nyee-yu*

Three specimens (Nos. 536-538), 125, 153 and 245 mm. long, from Hangchow, Chuchi and Nanking.

Head 4.7; depth 7; eye 8.5; snout 3.7; interorbital width 2.1; D. I, 4; A. 80; width of mouth 1.7 in head. Snout depressed and rounded; teeth villiform; 4 barbels, those on upper jaw the longer; distance from end of snout to origin of dorsal about $\frac{1}{3}$ total body length; anal near ventrals and confluent with caudal. Color, dark brown above, buffy below.

Silurus asotus Linnæus, Syst. Nat., ed. X, 1758, 501.

31. *Peltiobagrus fluvidraco* (Richardson)

Six specimens (Nos. 539-544), ranging from 15 to 227 mm. in length, from Hangchow and Chuchi.

Head 3.5; depth about 4; snout 3; interorbital width 2.4; D. I, 7; A. V, 15. Lower jaw shorter than upper; pectoral spine serrated on both edges; 8 barbels, those on maxillaries as long as head, outer mental barbels about 1.5 in head, the nasal and inner barbels about 3 in those on maxillaries. Color brownish.

Pimelodus fluvidraco Richardson, Ichth. Chin., 286, 1845.

32. *Clarias fuscus* (Lacépède)

One specimen (No. 870), 227 mm. long, from Nanking.

Head 4.5; depth 6.3; eye about 9; snout about 3; interorbital width about 2; D. 59; A. 45; 8 barbels, 2 pairs on the lower jaw, one on the nasal, and another on the maxillary which are the longest and extend to the pectorals; mouth inferior; teeth villiform; head granulated above, somewhat flattened; pectoral low, longer than snout, the spines serrated; ventrals small; anal not confluent with caudal. Color, brownish black.

Macropteronotus fuscus Lacépède, Hist. Nat. Poiss., V, 88, pl. 2, fig. 2, 1803, China.

Family HEMIRAMPHIDÆ

33. *Hemiramphus sajori* Temminck & Schlegel

One specimen (No. 874), from Chefoo.

Head 5; depth 2 in head; D. 16; A. 17; P. 13; eye 2.1 in snout, equal to interorbital width; upper jaw longer than broad, the lower shorter than head; vertex flat; origins of dorsal and anal opposite; insertion of ventrals a little nearer pectoral than caudal; pectoral 1.8 in head; caudal deeply forked; about 100 scales in lateral line; head scaled. Color, dark brown.

Hemiramphus sajori Temminck & Schlegel, Fauna Japonica, Poiss., 246, pl. CX, fig. 2, 1846, Nagasaki.

Family SOLEIDÆ

34. *Zebrias zebrinus* (Temminck & Schlegel)

One specimen (No. 879), 144 mm. long, from Chefoo.

Head 5.8; depth 2.6; D. 77; A. 66; scales 128, small, ctenoid; eyes on right side, the upper in advance of lower; mouth narrow, twisted around to the left side; caudal confluent with dorsal and anal; pectoral very small. Body with 12 black cross-bars.

Solea zebrina Temminck & Schlegel, Fauna Japonica, Poiss., 186, pl. XCV, fig. 1, 1846.

35. *Cynoglossus abbreviatus* (Gray)

Three specimens, 122, 251 and 254 mm. long respectively, from Hangchow; two 153 and 156 mm. long from Nanking, and one (No. 858), 141 mm. long from Ningpo.

Head 4.7 in total length; depth 3.7; snout 3. Three lateral lines on left side, one on right; upper eye slightly in advance of lower; nostrils 2, one between eyes, the other before lower angle of lower eye; lips not fringed. Color brown.

Plagiusa abbreviata Gray, Ill. Ind. Zool., 1830-34, plates, without text.

Family OPHICEPHALIDÆ

36. *Ophicephalus argus* Cantor

(*O. pekinensis* Basilewsky)

Chinese name, *Her-yu* (Black-fish)

Three young individuals (Nos. 550-552), 90 to 175 mm. long, from Hangchow, Chuchi and Shanghai.

Head 3.5; depth 6; eye 6.8; snout 5.8; interorbital width 5.7; D. 48; A. 32; scales 6-62-12.

Body elongate, anterior portion somewhat cylindrical; villiform teeth in jaws, vomer and palatines, with some larger teeth among them; three distinct mucous pores on under part of lower jaw and three on lower limb of opercle.

Back blackish, under parts white; many dark spots and cross-bars on sides of head and body; small dark dots on fins.

This species is predaceous, feeding largely on other fishes.

Ophicephalus argus Cantor, Ann. Mag. Nat. Hist., 1842, IX, 484, Chusan.

Family POLYACANTHIDÆ

37. *Polyacanthus opercularis* (Linnæus)

One specimen (No. 861), 51 mm. long, collected by Dr. Ping at Chefoo.

Head 3.3; depth 2.9; width of body 2 in length of head; eye 3.5 in head, rather large and prominent, equalling snout; mouth small, slightly oblique, gape not reaching to anterior of orbit. D. XIV, 4, the spines gradually lengthening from first

to last, tips of last ones hidden in membrane; A. XV, 13, the spines and rays hidden in thick membrane, the first ray produced into a long filament; no lateral line; scales weakly ctenoid, with rounded posterior margins, about 14 in a transverse, 30 in a longitudinal series; opercles, cheeks, and entire head scaly. Head with mucous pores especially along edge of preopercle. Dorsal beginning behind origin of pectoral. Gill-membranes forming a fold over isthmus. Dorsal and anal free from the caudal, but the long rays each extending backward over half the length of the acutish caudal, so that they enter into the outline of the fish giving the body a lanceolate appearance.

Color, blackish, a black spot on opercle.

Labrus opercularis Linnæus, Amoen. Acad., IV, 428.

Family MUGILIDÆ

38. *Mugil cephalus* Linnæus

Chinese name, *Tse-yu* (Dark-fish)

Ten specimens (Nos. 553-560), 133 to 269 mm. long, from Hangchow.

Head 4.5; depth about 5; eye 5.5; D. IV-I, 8; A. III, 8; scales 38, no lateral line; upper lip with a single row of minute fringes; origin of pectoral above median line of body; insertion of ventrals between spinous dorsal and pectoral; anal about opposite second dorsal.

Mugil cephalus Linnæus, Syst. Nat., ed. X, 1758, 316, **Europe**; based on Artedi.

Family PAMPIDÆ

39. *Pampus lighti* Evermann & Shaw, new species

One specimen from Nanking.

Head 3.45; depth 1.5; eye 3.3; snout shorter than eye; interorbital width 2.5; D. X, 48; A. VII, 45.

Body compressed and deep; scales very small; origin of pectoral at median line of depth; 2.4 in body; no ventrals; caudal

peduncle a little longer than eye; caudal fin deeply forked, lower lobe the longer, 2.1 in total length without tail; gill-openings restricted to the sides.

Color, bluish gray above and on fins, silvery below median line; caudal slightly reddish.

This species resembles *Pampus sinensis* but differs in the longer pectoral, more deeply forked caudal, whose lobes are unequal in length, shorter lower jaw, and the more pointed anterior portions of dorsal and anal.

From the common Chinese species, *Pampus argenteus*, this species differs in the greater number of spines and rays in the dorsal and anal fins.

Type: No. 504, Mus. Calif. Acad. Sci., a specimen (No. 855), 77 mm. long, collected by Professor Ping at **Nanking**.

This species is named for Dr. S. F. Light, sometime professor of zoology in Amoy University, now assistant professor of zoology, University of California, in recognition of his valuable studies of the Lancelets of the Amoy region.

Family MORONIDÆ

40. *Lateolabrax japonicus* (Cuvier & Valenciennes)

Chinese name, *Lou-yu*

Six specimens (Nos. 863 and 561 to 565), 102 to 246 mm. long. from Hangchow and Woosung.

Head 3.1; depth 3.8; eye 5; snout 3.3; interorbital width about 6, a little less than eye; D. XI or XII-I, 13 or 14; A. III, 7 or 8; scales 85 to 90 in lateral line. Mouth large, terminal; villiform teeth in both jaws and on palatines; no canines; 7 branchiostegals; opercle and preopercle armed with spines.

Color, with black spots on sides and on first dorsal fin.

A valuable and popular food fish.

Labrax japonicus Cuvier & Valenciennes, Hist. Nat. Poiss., II, p. 85, 1828.

Family EPINEPHALIDÆ

41. *Siniperca chuatsi* (Basilewsky)

Chinese name, *Chua-yu*; foreigners call it Mandarin Fish

Six specimens (Nos. 846 and 566 to 570), 133 to 196 mm. long, from Hangchow, Nanking, and Shanghai.

Head 2.4-2.8; depth 2.6-2.8; eye 6.3; snout 4.3-4.4; interorbital width 6.3; D. XII, 14; A. III, 9; V. I, 5; scales small, about 120 in lateral line. Mouth large, lower jaw much longer than the upper; opercle and preopercle armed with spines. One of the best food-fishes in China.

Perca chua-tsi Basilewsky, N. Mém. Soc. Nat. Mosc., X, 1855, 218, pl. 1, fig. 1. **China.**

Family LUTIANIDÆ

42. *Lutianus hudsoni* Evermann & Shaw, new species

One specimen (orig. No. 860).

Head 2.7; depth 2.4; eye 3.5; snout a little longer than eye; D. XI, 11; A. III, 8; scales 5-48-13; branchiostegals 7.

Body oblong, compressed; interorbital width a little greater than eye; maxillary reaching front of eye; preopercle serrate; pectoral low, below point of opercle, its length 3.3 in body; ventrals shorter than pectorals; first dorsal spine about 2 in 4th; dorsal rays longer than spines; distance from tip of snout to origin of dorsal equals depth of body; depth of caudal peduncle 2.5 in head; tail forked; teeth villiform, 4 canines in front of upper jaw and 5 in lower jaw; lateral line curved, running along dorsal side then to middle of tail; bases of dorsal and anal with scales. Color reddish.

This species resembles *Lutianus johnii* (Bloch) but differs in the fewer dorsal rays and the absence of a black spot below the soft dorsal.

Type: No. 505, Mus. Calif. Acad. Sci., a specimen 58 mm. long, collected at **Nanking** by Professor Ping.

This species is named for Captain Charles Bradford Hudson, most able American artist in depicting the life colors of fishes.

Family HÆMULIDÆ

43. *Hapalogenys nigripinnis* (Temminck & Schlegel)Chinese name, *King-fung* (Golden Wind)

One specimen (No. 858), 71 mm. long, from Ningpo.

Head 2.6; depth 2; eye 3.1; snout 2.9; interorbital width 4; D. XII, 14, fourth spine longest; A. III, 9; depth of caudal 3 in head; scales in lateral line 62.

Body oblong, high and compressed; mouth large; 4 large pores on lower side of mandible, some minute papillæ in front of them; preopercle serrate, opercle with 2 short spines. Color, reddish gray, darker bands not distinct; fins dark.

Pogonias nigripinnis Temminck & Schlegel, Fauna Japonica, Poiss., p. 59, pl. XXV, 1843.

Family SCIÆNIDÆ

44. *Collichthys lucidus* (Richardson)Chinese name, *Tse-ser-yu* (Stone-head Fish)

One specimen (No. 856), 115 mm. long, from Wenchow.

Head 3.4; depth 3.3; eye 4.5; snout 4; interorbital width 2.4; D. IX, 28; A. II, 13; scales about 50. Body elongate; maxillary reaching posterior edge of orbit; teeth feeble, no canines; lateral line complete, high, curved at end of pectoral then straight to middle of caudal; dorsal spines short, about as long as snout; dorsal rays much longer; pectoral below median line of body, slightly shorter than head; ventrals near pectorals; depth of caudal peduncle 4 in depth of body; caudal fin longer than head.

Common in seas of China.

Sciæna lucida Richardson, Ichth. Voy. Sulph., 87, pl. XLIV, figs. 3, 4, 1845, Chinese Seas.

Family DREPANIDÆ

45. *Drepane punctata* (Gmelin)Chinese name, *Ke-lung-tsang* (Coop-tsang fish)

One specimen (No. 877), 91 mm. long, from Ningpo.

Head 2.8; depth a little less than length; eye 3.1, 1.3 in snout; interorbital width greater than diameter of eye; D. IX,

21; A. III, 19; P. 17; V. I, 5. Body much compressed, deep; anterior dorsal spine concealed and directed forward; interspinous membranes deeply notched; pectoral long, falciform; scales moderate, about 60 in lateral line.

Chaetodon punctatus Gmelin in Linnæus, Syst. Nat., ed. XIII, 1787, 1343, Asia.

Family SYNANCEJIDÆ

46. *Inimicus japonicus* (Cuvier & Valenciennes)
Chinese name, *Laou-hoo-yu* (Tiger-fish)

One specimen (No. 868), 110 mm. long from Ningpo.

Head 3; depth 3.5; eye 7; snout 2.8; D. III-XIV, 7; A. II, 9. Body elongate, little compressed; head irregular in form; pectoral long, reaching past front of anal; ventrals adnate for their entire length; anal spines short; caudal fin rounded; lateral line with 15 filaments. Color, dark brown, with cross-band of black or red.

Pelor japonicum Cuvier & Valenciennes, Hist. Nat. Poiss., IV, 437, 1829, Japan.

Family SCORPÆNIDÆ

47. *Sebastodes fuscescens* (Houttuyn)

One specimen (No. 872), 88 mm. long, from Chefoo.

Head 2.7; depth 2.8; eye 3.3, slightly exceeding snout; interorbital width 4.3; D. XII-I, 12; A. III, 7; P. 18; V. I, 5; lateral line with 46 pores; maxillary 2 in head.

Body oblong; lower jaw the longer; interorbital space slightly convex, spines lying close to surface; preopercle with 5 spines; dorsals long, the two connected slightly; and rounded; teeth villiform.

Color, dark brown with blotches on dorsal and sides.

Sparus fuscescens Houttuyn, Verh. Holl. Maats. Wet. Harlem., XX, pt. 2, 1872, 340, Nagasaki.

Sebastes schlegelii Hilgendorf, S. B. Gesell. Naturf. Freunde, 171, one plate, 1880, Tokyo; Hakodate.

Family PLATYCEPHALIDÆ

48. *Thysanophys spinosus* (Temminck & Schlegel)

One specimen (No. 880), 105 mm. long, from Ningpo.

Head 2.5; depth 4.9; eye 3.2; snout 3.2 interorbital width 4 in eye; width of head 1.8 in the length; D. VIII-I, 8; A. III, 5; V. I, 5. Head broad and depressed, armed with spines; body depressed anteriorly, subcylindrical posteriorly; about 40 scales in lateral line; first dorsal above pectoral, second a little in advance of anal; ventral origin below base of pectoral; caudal rounded.

Platycephalus spinosus Temminck & Schlegel, Fauna Japonica, Poiss., 40, pl. XVI, figs. 1, 2, 1843.

Family COTTIDÆ

49. *Trachidermis fasciatus* Heckel

Chinese name, *Sungkiang Lu-yu* or *Tse-sai Lu-yu*

Five specimens (Nos. 866, and 571-574), 122 to 142 mm. long, from Sunkiang.

Head 2.8; depth 4.5; eye 6.5; snout 3.2; interorbital width 3.8; D. VIII, 19; A. 17; lateral line with 38 small pores. Head more or less depressed; body subcylindrical, compressed posteriorly; teeth fine, on both jaws, vomer and palatines; interorbital space concave, lower preopercular edge with 4 broad, short spines, the upper one curved upward.

Trachidermus fasciatus Heckel, Ann. Wiener. Mus., II, 1840, 160, pl. IX, fig. 1, 2.

Family GOBIIDÆ

50. *Ctenogobius clarki* Evermann & Shaw, new species

Chinese name, *Yeo-boo-sao*

Head 3.6; depth 6.2; eye 5.5, a little greater than interorbital width; D. VI, 16; A. 13 or 14; about 50 scales in lateral line.

Body oblong, slender, heaviest anteriorly, tapering to caudal; mouth rather large; teeth strong, flattened laterally;

origin of second dorsal a little in advance of anal; caudal long and rounded.

Five specimens (Nos. 507 and 580-583), 80 to 170 mm. long, from Hangchow, Shanghai and Chuchi.

Not very common; has some value as a food-fish.

Type: No. 507, Mus. Calif. Acad. Sci., a specimen 170 mm. long, collected by Mr. Shaw at **Chuchi**.

This species is named for H. Walton Clark, assistant curator of fishes in the California Academy of Sciences, in recognition of his valuable studies of the fauna and flora of Lake Maxinkuckee.

51. *Lophiogobius ocellicauda* Günther

One specimen (No. 859) $4\frac{1}{4}$ inches long, from Wenchow, China.

Head 3.3 in body; depth 7.5; eye very small, 9 in head; snout 3 in head; D. IV-14; A. 13; scales 5-40-4, no pores in lateral line which simply appears as a depressed line.

Head very broad and flat, its width 4.1 in body; interorbital broad, slightly concave, bordered on each side by a high ridge; mouth wide, gape horizontal, extending to posterior margin of orbit; gill-membranes free from the isthmus; branchiostegals 5, very prominent, raised ridges beset with papillæ or rudimentary flaps; pectoral base very broad, close to and parallel with gill-slit, the rays numerous, the fin long and acute, reaching beyond origin of anal, its length 1.3 in length of head; ventrals thoracic, united into a long, elliptical, fringed disk, the origin on a vertical with lower end of origin of pectorals. Teeth two-rowed in lower jaw, or rather in a narrow villous band, the outer row somewhat enlarged and curved inward; teeth of premaxillaries similar; lower jaw projecting beyond upper, its bluntly-rounded tip fitting into a broad notch of upper lip; marked anal papilla; scales weakly ctenoid, striate.

A striking feature of this fish is what might be termed its "hairiness" expressed by the lengthening of all the fin-rays into elongate hair-like projections, and by the presence of minute hair-like flaps on various parts of the body as on the

cheek and edges of the opercle and along the rays. Color, sordid blackish. An examination of more material may show this to be an undescribed species.

Lophiogobius ocellicauda Günther, Ann. Mag. Nat. Hist., 4th Ser., XII, 1873, 241, Shanghai, China.

Ranulina fimbriidens Jordan & Starks, Proc. U. S. Nat. Mus., XXXI, Oct. 8, 1906, 523, fig. 3, Port Arthur, Manchuria.

Family URANOSCOPIDÆ

52. *Uranoscopus japonicus* Houttuyn

Chinese name, *Koh-yu* (Horned-fish)

One specimen (No. 848), 194 mm. long, from Ningpo.

Head 3.3; depth 4.2; eye 6.2; snout longer than eye; D. IV, 14; A. 14; P. 16; V. 5. Cleft of mouth vertical, eyes on upper side of head; first dorsal small; teeth villiform, no canines; head covered with spines, one on the opercle and 3 on the subopercle, all directed downward; two small and 2 larger spines of horny structure on nape. Head and back brown, irregularly spotted with lighter.

Uranoscopus japonicus Houttuyn, Holl. Matts. Wet. Haarlem, 1782, 311.

Family PHOLIDÆ

53. *Pholis gunnellus* (Linnæus)

One specimen (No. 857), 104 mm. long, from Chefoo, which we with much hesitation identify with this species.

Head 7.5; depth 8; eye 5, about same as snout; D. LXXV; A. II, 39; V. I, 1, P. 2 in head; scales very small, no lateral line. Body long and compressed; head small, naked; mouth oblique; maxillary reaching front of pupil; interorbital with a narrow ridge; origin of dorsal fin as far behind nape as nape is behind middle of eye. Color, some dark bars on body; spots on dorsal not evident. Study of more adequate material would probably show this to be distinct from the Atlantic species.

Blennius gunnellus Linnæus, Syst. Nat., ed. X, 1758, 257, Atlantic Ocean.

Family CEBIDICHTHYIDÆ

54. *Zoarchias glaber* Tanaka

One specimen (No. 869), 110 mm. long, collected by Professor Ping at Nanking, agrees fairly well with Tanaka's description.

Head 6.3; depth 12; about 2 in head; eye 8; snout 4; rather short and pointed; D. XXXI, spines short, stout, depressed in a groove on back; one anal spine; soft dorsal and anal connected with rounded caudal. Color, blackish, a lighter colored line along each side of back; soft dorsal and caudal somewhat mottled.

Zoarchias glaber Tanaka, Ann. Zool. Japon. VII, part I, 38, 1908.

Family TETRAODONTIDÆ

55. *Sphæroides ocellatus* (Linnæus)

Chinese name, *Hoo-dung*

Four specimens (Nos. 576-579), 133 to 165 mm. long, from Hangchow, and one 82 mm. long, from Woosung.

Head 3; depth 3.5; D. IV, 12 or 13; A. III, 10. Back covered with minute spines from near interorbital space to dorsal fin; abdomen entirely covered with similar spines; sides of body naked.

A black yellowish-edged band across back, ending in a more or less yellowish-edged spot. In some specimens there are two black spots on each side of body instead of the cross-bars. In one specimen the dorsal bar is much broader.

Kiangyiu is famous for the cooking of Hoo-dung, the people there having a special technique and skill in removing the poison of the ovaries and preparing this fish so that it is the nicest dish they have.

Tetrodon ocellatus Osbeck, Iter Chinensis, 1757, 226; Linnæus, Syst. Nat. ed. X, 1858.